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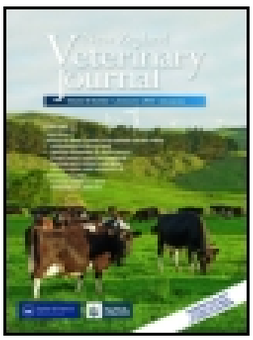

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Short Communication

Use and perception of collars for companion cats in New Zealand

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Abstract

AIMS: To investigate the use and utility of collars for companion cats in New Zealand, and to explore public perception of collar use.

METHODS: An online questionnaire was distributed using emails and social media to members of the general public in New Zealand. The questionnaire collected details of respondents, cat ownership status, and responses to a number of questions regarding collar use in cats.

RESULTS: A total of 511 responses were collected. Of these, 393/511 (76.9%) reported owning ≥1 cat at the time of survey, and 141/393 (35.9%) stated that ≥1 of their cats wore collars and 211/393 (53.7%) had ≥1 of their cats micro-chipped. Of the respondents with a pet cat, 351/393 (89.3%) allowed their cats some outdoor access. Respondents mainly used collars for identification and to reduce predation. Reasons for not using collars included cat intolerance of collars, repeated collar loss and concern over collar safety. Differences were found between cat owners and non-owners regarding whether they agreed that cats were important for pest control (43 *vs.* 25%, $p<0.001$); that not all cats will tolerate collars (81 *vs.* 64%, $p<0.001$); that cats should be kept indoors at night (37 *vs.* 58%, $p<0.001$); or disagreed that well fed cats will not catch birds (60 *vs.* 70%, $p=0.04$); and disagreed that a cat without a collar was likely to be a stray (85 *vs.* 76%, $p<0.001$). Respondents

most trusted veterinarians and the Society for the Prevention of Cruelty to Animals as sources of pet care information.

CONCLUSIONS: Collar use within this sample of cat owners in New Zealand appeared to be low, with more using microchips for identification. The majority of cat owners in this study indicated their cats had some outdoor access, with collars being used for cat identification and to reduce hunting behaviour. Significant differences existed in opinions on cat management between cat owners and non-owners in this study. It should be noted that this preliminary exploration was based on a self-selected group of respondents and so results and conclusions cannot be extrapolated to the wider population.

RELEVANCE: As the most trusted source of information about pet care, an enhanced understanding of cat ownership and management may be of use to veterinarians to promote responsible pet ownership and to develop national policies and practices to improve cat welfare.

KEY WORDS: *Animal welfare, cat, collar, identification, veterinary services*

SPCA Society for the Prevention of Cruelty to Animals,

Introduction

The domestic cat population in New Zealand has been estimated to be approximately 1.4 million owned animals, and approximately 48% of households in New Zealand are reported to own a cat (MacKay 2011). This estimate excludes stray cats and, within Auckland, areas of high human population density have been shown to have particularly high densities of stray cats (Aguilar and Farnworth 2012, 2013). Stray and owned cats are largely indistinguishable and are likely to have a complex interaction which perpetuates New Zealand's cat population. Given the body of evidence demonstrating a strong bond between cats and their owners (Staats *et al.* 2008; Sable 2013), companion cats, and therefore urban cat populations in general, are likely to remain part of the complex ecology of New Zealand for the foreseeable future.

Free-roaming cats may experience numerous hazards in the outdoor environment, including traffic accidents and fighting injuries (Loyd *et al.* 2013). Becoming lost is another of these risks and lost cats are less likely to be reunited with their owners than dogs, in part due to a lack of routine identification (Lord *et al.* 2007a; Weiss *et al.* 2012). Proper identification is also useful for contacting owners in the event of emergency veterinary treatment, where poor animal identification

may delay necessary interventions and reduce the likelihood of a positive outcome (Slater *et al.* 2012).

Classifying cats as feral, stray, or owned and then differentiating between these groups is a task fraught with complexities (Farnworth *et al.* 2010a, b). Collars may be a useful means of negating the difficulties in differentiation of owned and unowned cats, as collars have been reported to be the most efficient method of visual identification for animals (Lord *et al.* 2007a, b). However collars are prone to loss, and public perception about the safety of collars may deter cat owners from using them (Lord *et al.* 2010; Calver *et al.* 2013). Microchips may be considered to be a safer, more reliable and permanent means of animal identification, however microchips are reported to be used even less frequently than collars (Lord *et al.* 2009, 2010; Slater *et al.* 2012).

Urban cats are known to be predators of wildlife in New Zealand (Gillies and Clout 2003; Flux 2007) and may have significant effects on both native and non-native urban bird species (Baker *et al.* 2008; van Heezik *et al.* 2010). Improved collar usage for cats may improve uptake of hunting-deterrent devices, such as bells, which have been demonstrated to reduce the hunting success of cats (Nelson *et al.* 2005; Calver *et al.* 2007; Gordon *et al.* 2010). Regular use of collars with anti-predation devices may mitigate the impact of cats on native and non-native fauna in New Zealand (Farnworth *et al.* 2010a; Calver *et al.* 2011; Calver and Thomas 2011). Thomas *et al.* (2012) reported that cat owners were less likely than non-cat owners to consider collar-mounted anti-predation devices to be acceptable, which may explain why respondents to a New Zealand survey stated that of those cats wearing collars, only half of them had bells attached (Farnworth *et al.* 2010a).

The aim of this preliminary study was to investigate the use and utility of collars for companion cats in New Zealand, and to explore public perception of collar use.

Materials and Methods

Survey

Data on cat ownership, use of collars, and perceptions of collar use were sought via an anonymous online survey. The target population was a sample of the general public of New Zealand, and the survey was randomly distributed via e-mail to contacts at the Society for the Prevention of Cruelty to Animals (SPCA), Unitec, University of Auckland, Victoria University, University of Otago, Lonely Miaow (Auckland, NZ), The Animal Sanctuary (Warkworth, NZ), and NZ Landcare Trust (Hamilton, NZ), and social media using an initial posting of the survey link on personal Facebook pages, Unitec Marketing, and Unitec Bachelor of Applied Science pages. Participants were asked to

participate, and to further distribute the survey. The survey remained open from 7–29 August 2013, and responses were gathered from adult (18 years and over) New Zealand residents. The survey consisted of 14 questions, as shown in Supplementary Table 1.[1] Data gathered included age, gender, area of residence, cat-ownership status, and management of any owned cats. Respondents were also asked to indicate their level of agreement with a number of statements regarding cats and collar use. Responses were on a 5-point Likert scale (Likert 1932) ranging from 'strongly agree' to 'strongly disagree'.

The research was approved by the Unitec Research Ethics Committee, Auckland, New Zealand (UREC Registration Number: 2011-1152).

Statistical Analyses

Results were analysed using SPSS/PSAW 21 statistical software (IBM Inc., Chicago, IL, USA). χ^2 tests were used on contingency tables to explore differences between rural and urban cat owners regarding collar use, and attitudes toward cats for pest control, and between cat owners and non-owner attitudes towards cats and collar use. Responses on a 5-point Likert scale were categorised as strongly agree/agree, neither agree nor disagree, and disagree/strongly disagree, for analysis in order to satisfy the assumptions of the statistical test, as were the categories of residence, categorised as inner city/urban, and semi-rural/rural.

Results

A total of 511 responses were collected. The demographics of the respondents are shown in Table 1. Of the respondents, 393/511 (76.9%) reported owning ≥1 cat at the time of survey. There was a strong bias towards female respondents and cat owners with 37/68 (54.4%) male respondents stating they own a cat, compared with 354/440 (80.5%) female respondents ($p<0.001$).

Responses regarding cat ownership and collar use are summarised in Table 1. Of the cat owning respondents, 141/393 (35.9%) stated at least some of their cats wore collars. More Inner city/urban cat owners (97/312; 31.1%) than semi-rural/rural cat owners (13/74; 17.6%) had cats that wore a collar ($p=0.021$). Of the respondents who reported owning a cat, 211/391 (54.0%) had ≥1 of their cats micro-chipped; 211/390 (54.0%) allowed their cats outdoor access at all times, and 139/374 (37.2%) thought their cat rarely left their property. In addition, 174/378 (46.0%) respondents felt confident their cat was safe whilst free-roaming.

Amongst all respondents, 283/486 (58.2%) agreed collars with bells, or other deterrent devices reduced the number of animals and birds cats catch or kill. The reasons given by cat owners for and

[1] DOI: [production editor to insert]

against collar use are presented in Table 2. Respondents most often used collars for identification, and to reduce predation of birds and other animals. Barriers to collar use as perceived by respondents were: cat intolerance of collars, repeated collar loss, and concern over collar safety.

There were differences in attitude between cat owners and non-owners regarding whether cats were important for pest control ($p<0.001$); whether cats will tolerate collars ($p<0.001$); whether being well fed influences cat hunting behaviour ($p=0.04$); whether cats should be kept indoors at night ($p<0.001$); and whether a cat without a collar was likely to be a stray ($p<0.001$). The distribution of responses is shown in Figure 1.

When asked which sources of pet care information were most trusted, respondents most often identified veterinarians (389/511; 76.1%) and the SPCA (42/511; 8.2%).

Discussion

The method of online survey distribution utilised in this study creates a number of important limitations including a response bias in favour of those with access to the internet, and (most likely) with an interest in animal welfare and/or cats. The respondents were assumed to be over 18 years old, and New Zealand residents, however there was no way to verify this.

The female bias in responses is unsurprising, as female response bias to online questionnaires has been previously demonstrated (Stieger *et al.* 2007), and the large proportion of female cat owners is consistent with the other studies (Murray *et al.* 2010; Westgarth *et al.* 2010).

The low percentage of respondents reporting cat collar use is consistent with the findings of Farnworth *et al.* (2010a). Micro-chipping appeared to be more commonplace than collar use, and may be a preferable method of cat identification for cat owners in New Zealand. This differs from other studies , where collars were reported to be utilised more frequently than microchips (Lord *et al.* 2009, 2010).

The 37% of owners who felt their cats rarely leave their own property almost certainly underestimated the true range of their cats (Barratt 1997; Horn *et al.* 2011; Wierzbowska *et al.* 2012). Nearly 50% of respondents indicated they felt confident their cat was safe whilst free-roaming, which suggests many owners may be unaware of the many risks cats face while free-roaming. Cat owners were also more likely to disagree with statements suggesting cats be confined. These observations suggest a cat's ability to roam freely may be perceived as quite important to cat owners. The difference in opinion between cat owners and non-owners seen in this study indicates further research into the values and motivations of cat owners is warranted.

The majority of respondents agreed that collar-mounted devices reduce predation, and many reported using collars for such a purpose. Despite this, many agreed that 'cats play an important role in the control of pests' and cat owners were more likely to agree than non-cat owners. There may be some dissonance between the perceived value of cats for their ability to hunt and control pests, and the desire to reduce hunting behaviour. Unfortunately the current study did not gather data on use of collar mounted devices, so no further insight into such devices can be gleaned.

Whilst only a preliminary investigation, this study has yielded interesting results which indicate collars are not widely used by this sample of cat owners in New Zealand, and microchips may be more readily adopted as a means of cat identification. Most cats owned by respondents to this study had outdoor access; and respondents mainly used collars to identify their animals and to reduce hunting behaviour. Owners and non-owners within this study sample appear to have different opinions on several aspects cat management. As the most trusted sources of information about pet care according to respondents, veterinarians and the SPCA are in a privileged position to promote positive states of welfare for companion cats through client education and legislative change.

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Table 1. Description of respondents to a survey of a sample of the New Zealand public regarding perceptions of cats and collar use, with information about the management of cats by those who were cat owners.

Variable		N	%
Gender			
	Female	440	86.6
	Male	68	13.4
Age			
	18–34	226	44.3
	35–54	213	41.7
	55–74	71	13.9
Area of residence			
	Inner city	65	12.8
	Urban	345	67.8
	Semi-rural	54	10.6
	Rural	45	8.8
Works with animals			
	Yes	142	27.8
	No	368	72.2
Owns one or more cats			
	Yes	393	76.9
	No	118	23.1
Number of cats			
	1	180	46
	2	128	32.7
	3	37	9.5
	>3	46	11.8
Cats wear collars			
	All	110	28.4
	Some	31	8
	None	246	63.6
Cats are micro-chipped			
	All	176	45
	Some	35	9
	None	180	46
Cats outdoor access is restricted			
	Never – free to come and go	211	54.1
	Dark only (dinner–breakfast)	68	17.4
	Overnight only (late evening–morning)	65	16.7
	Always – indoor only	13	3.3
	Daytime only	7	1.8

	Completely enclosed property	6	1.5

Table 2. Responses to a survey of a sample of the New Zealand public regarding perceptions of cats and collar use by cat owners (n=393), showing reasons why collars were or were not used by respondents. Note respondents could select as many reasons as they felt were applicable.

Reasons collars used	N	Reasons collars not used	N
Identification	105	My cat keeps losing them/They need to be replaced too often	118
To prevent them catching/killing birds	71	My cat is intolerant of collars	101
To prevent them catching/killing other animals	40	I think collars are unsafe	88
Because they look great	18	I've had a cat injured because they were wearing a collar/I have lost a cat due to collar injury	63
Flea control	17	I am happy for my cat to control pests around my home	54
Other	34	I don't believe collars are effective at reducing hunting behaviour	47
		My cat is micro-chipped and therefore doesn't need a collar for identification	35
		The bell/beeper on it seemed to bother my cat	28
		The bells/beepers on them are disruptive to us	16
		Too expensive	10
		Other	65

Figure 1. Bar graph showing results of a survey of a sample of the New Zealand public regarding perceptions of cats and collar use, showing the responses of cat-owners (n=393) and non-owners (n=118) to the statements (1) Cats play an important role in controlling pest populations in New Zealand; (2) Not all cats will tolerate a collar; (3) Domestic cats who are well fed do not tend to catch many animals/birds; (4) I believe owners should always keep cats indoors overnight; (5) Cats not wearing collars are generally stray cats. Responses were categorised as: strongly agree/agree (dark grey bars), neither agree nor disagree (light grey bars) or disagree/strongly disagree (mid-grey bars).